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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,012	06/21/2001	Kazunori Iwamoto	684.3200	4403

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EXAMINER

ESPLIN, DAVID B

ART UNIT PAPER NUMBER

2851

DATE MAILED: 11/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,012

Applicant(s)

IWAMOTO ET AL.

Examiner

D. Ben Esplin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-35 is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Drawings

The previously made objection to the drawings as not every feature of the claimed invention is hereby withdrawn.

Specification

In light of changes made to the specification and claims via Amendment A, the previously made objections to the specification and claims are withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-9 and 11-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent No. 6,271,606 to Hazelton.

FIG. 9 of Hazelton shows a moving mechanism including a reference structure having a guide surface (mass base 98), and a moveable portion (chamber 14). The moving mechanism further contains an actuator (linear motor 58), shown in more detail in FIG. 4d, which is made up

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of a moveable element (projection 90) disposed on the side of the moveable portion, and stators (coils of electrical wires 46). The stators being movable along the guide surface by way of being contained within frames 96, which are mounted on reaction masses 26, supported on top of the guide surface by air bearings that are not shown (col. 11 lines 62-64). This arrangement allows the stators to be moved by the reaction force produced as the moveable portion is driven (col. 11 lines 65+). FIG. 4d also shows that the stators of the linear motor are coils of the electrical wires 46, and that the movable element is a permanent magnet (magnet 42). While Hazelton does not expressly teach of a position measuring device, the inclusion of one is inferred since Hazelton does disclose a driving mechanism (trim motor 99) for positioning a reaction force counter (reaction Masses 26) along the guide surface in order to make minor corrections in the positioning of the reaction force counter. In order to corrections to be made, some sort of quantitative measurement of position must be made to determine if corrections are necessary, and if so, what they are.

The moving mechanism of Hazelton is further disclosed as being provided for moving a stage in an exposure apparatus (see abstract), the exposure apparatus being shown in FIG. 10. The exposure apparatus further includes exposure means for patterning a circuit pattern from an original to a substrate through a projection optical system (col. 12 lines 10+), with both the original (reticle) and the substrate (semiconductor wafer) being moved relatively to the projection optical system (lens assembly 88) by means of stages (reticle stage 28 and wafer stage 30) actuated by the above described moving mechanism. The projection optical system and stages of Hazelton are also shown as being mounted onto a barrel base (apparatus frame 100). Hazelton also teaches that ArF excimer ultraviolet laser light may be used as exposure light (col.

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13 lines 34-36). FIG. 10 also shows the projection optical system as extending to the stage, thereby acting as a shielding wall creating an atmosphere controlled environment, such an environment being made necessary by the use of some types of exposure light (col. 13 line 34 – col. 14 line 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as applied to claims 1-9 and 11-20 above, and further in view of U.S. Patent No. 5,858,587 to Yamane et al.

While Hazelton is silent with respect to including theta or z axis tilt control in the stage driven by the described moving mechanism, Yamane shows that stages adjustable for theta and axis tilt and driven by a moving mechanism were well known in the art (FIGS. 16 and 17). Therefore, it would have been obvious to one of ordinary skill to replace the ordinary stage of Hazelton with the more adjustable stage shown in Yamane as an art recognized equivalent.

Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as applied to claims 1-9 and 11-20 above, and further in view of U.S. Patent Application Publication No. US2001/0052967 to Ogura et al.

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Hazelton is silent with respect to the linking of the described exposure apparatus, along with other production machines, to a local area network, accessible by an external network for performing data communication for creating a maintenance information database. However, FIGS. 4-6 of Ogura show that such an arrangement was well known (paragraphs 41-46). Therefore, it would have been obvious to install the apparatus of Hazelton in a production system like the one disclosed in Ogura as an art recognized use.

Response to Arguments

Applicant's arguments filed 17 October 2002, have been fully considered but they are not persuasive. Applicant's assertion that the left and right stators of Hazelton are connected to form an integral structure is not supported by the drawings and/or specification of Hazelton, which do not teach of such a connection. Thus, both stators are free to move separately. Further, since each of the reaction masses are supported only by gas bearings, they each have complete freedom of movement in the two dimensional plane of the mass base, making them movable in two dimensions.

Allowable Subject Matter

Claims 28-35 are allowed.

The following is an examiner's statement of reasons for allowance: An X-Y stage including first stators, separable from each other, and second stators, separable from each other, wherein each stator is movable on a two dimensional plane, along with the rest of the structure and function of these claims, is not shown in the prior art.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,449,030 to Kwan discloses a balanced positioning system for use in a lithographic apparatus.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell E. Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



DBE

November 7, 2002



RUSSELL ADAMS
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